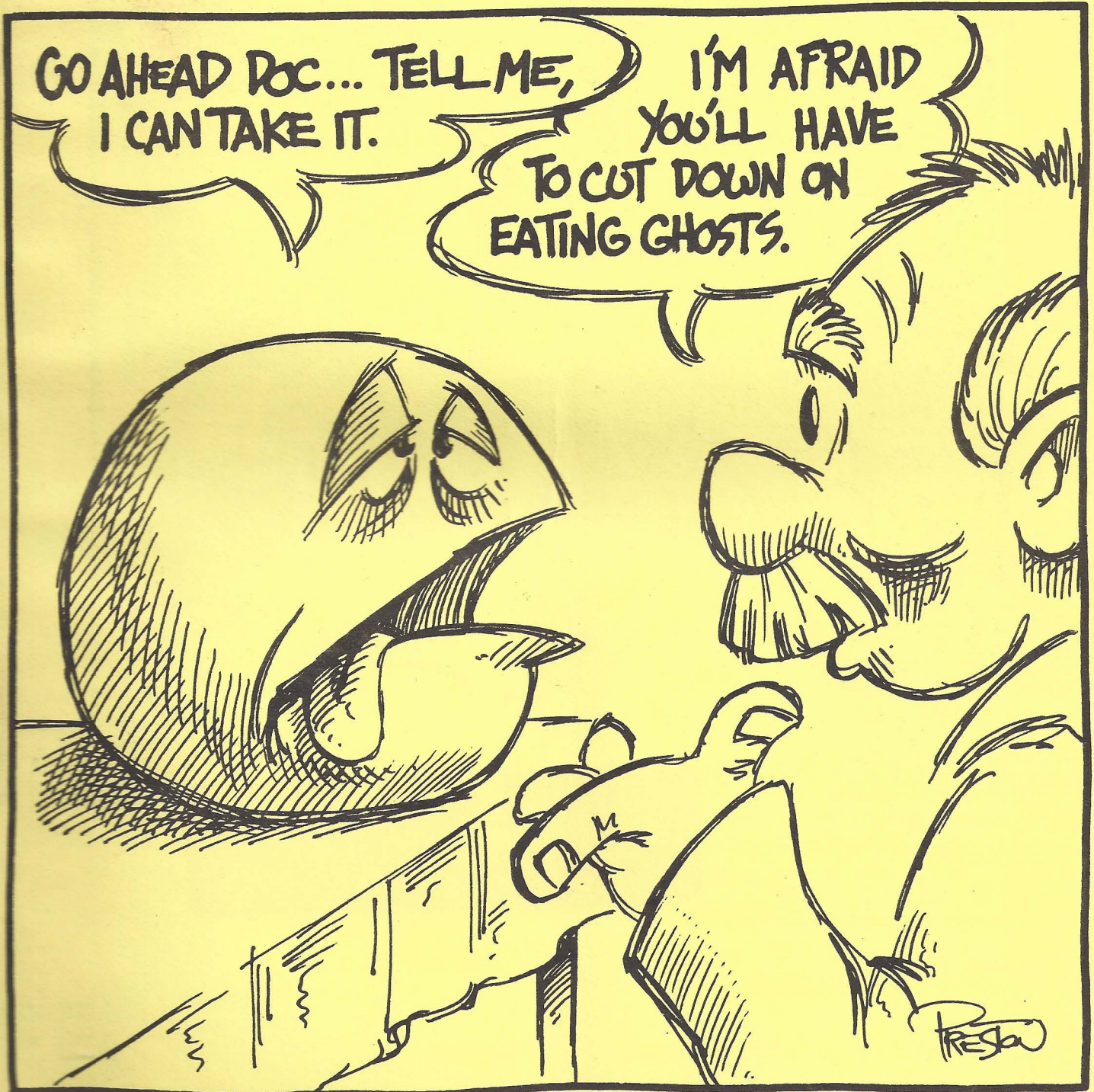


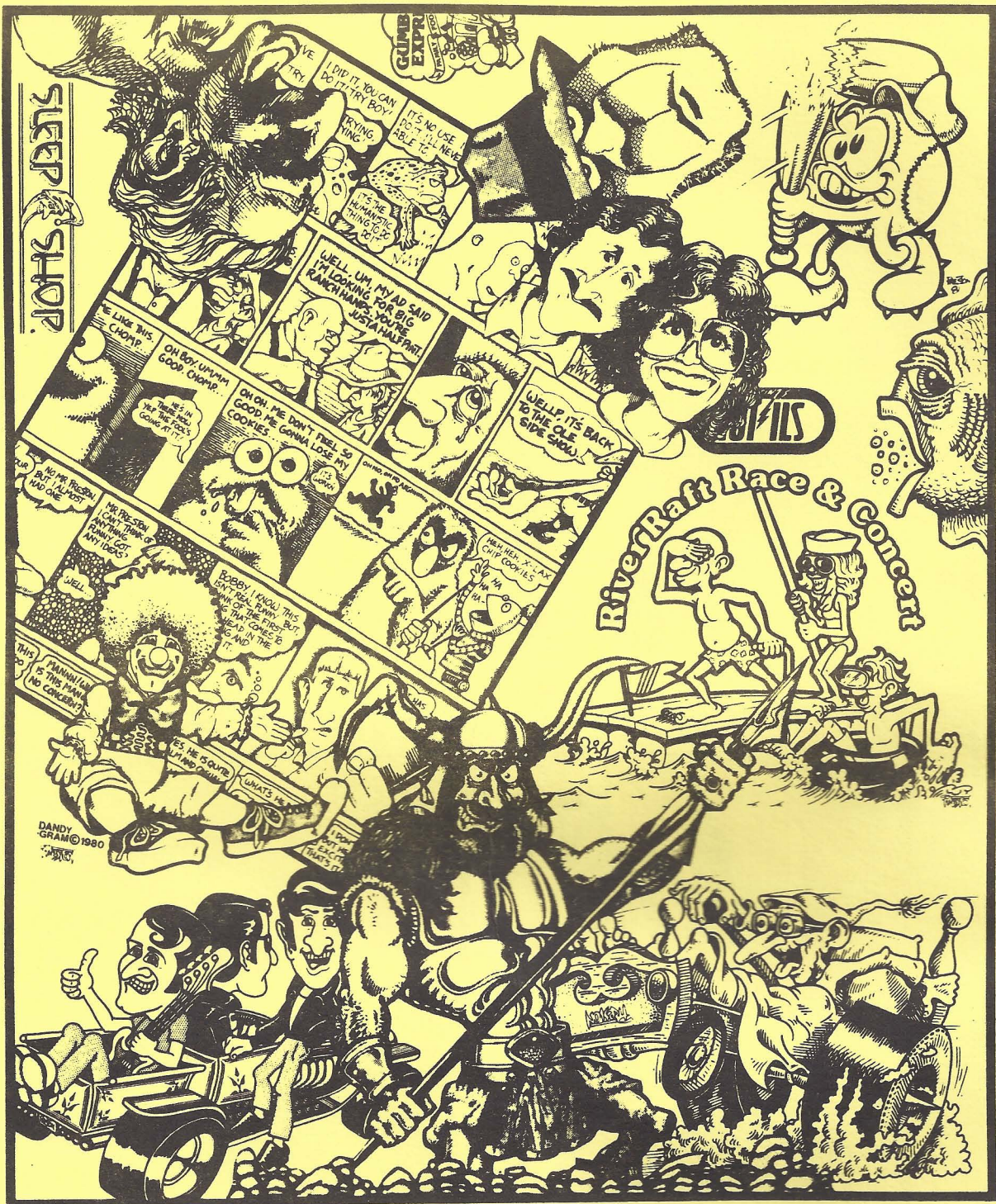
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ENERGY = MC^2 ... THE MICHIGAN COMPUTER CONSORTIUM MAGAZINE

ISSN: 0740-2759

APRIL 1984





**Dennis
PRESTON**
COMMERCIAL ARTIST
& CARTOONIST

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LANSING, MICHIGAN

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MARCH 1984
 SU MO TU WE TH FR SA
 1 2 3
 4 5 6 7 8 9 10
 11 12 13 14 15 16 17
 18 19 20 21 22 23 24
 25 26 27 28 29 30 31

CONSORTIUM CALENDAR

APRIL 1984

MAY 1984
 SU MO TU WE TH FR SA
 1 2 3 4 5
 6 7 8 9 10 11 12
 13 14 15 16 17 18 19
 20 21 22 23 24 25 26
 27 28 29 30 31

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
	1	2	3	4 M3G EXEC	5	6
7	8 CMTUG	9	10 OSBORNE SIG	11 LACC	12 FRIDAY THE 13TH	13
14	15 ENERGY deadline	16 Taxes Due	17 HEATH SIG	18 M3G CHAOS ASM SIG	19	20 CHAOS
21	22 Easter	23 UPDO (IBM PC)	24	25 CP/M SIG	26	27 APPLE LUG
28	29	30				

This listing is as accurate as the information we receive.
 To list an event or update information, contact Joe Werner
 at 337-7415 (evenings).

Apple LUG (Lansing Users Group)

Meets: Last Saturday 9:30 am
 2nd floor, Erickson Hall, MSU
 Contact: C. A. Scholfield 373-7538
 406 Box Tree Lane #101, East Lansing, MI 48823

CCUG (Color Computer Users Group)

Meets: East Lansing Public Library, 950 Abbott, E.L.

CHAOS (Capitol Hill Atari Owners Society) (MC2)

Meets: Third Saturday 9:30 AM
 Foster Community Center, 200 N Foster, Lansing
 Contact: Ike Hudson 351-3092

CHAOS Assembler SIG (MC2)

Meets: 3rd Thursday
 (April meeting at Mike Caterino's house -
 contact Mike at 371-3678 or 337-0248)
 Contact: Wendell Proudfoot 371-3678

CHAOS BASIC SIG (MC2)

Meets: 1st and 3rd Wednesdays 7:00 PM
 Foster Community Center, 200 N Foster, Lansing
 Contact: Mike Aldrich 394-2412

CMTUG (Central Michigan TRS-80 Users Group) (MC2)

Meets: First Sunday, 1 PM
 Library of Michigan, 735 East Michigan, Lansing
 Contact: Sky Triebel 349-1857

LACC (Lansing Area Commodore Club)

Meets: First Wednesday (usually) 7:30 pm
 All Saints Episcopal Church
 800 Abbott, East Lansing

M3G (Mid-Michigan Microcomputer Group) (MC2)

Meets: Third Thursday (usually), 7:30 PM
 East Lansing Public Library, 950 Abbott, E.L.
 Contact: Dave Chun 394-6318
 Executive Meetings:
 First Thursday, 7:30 PM
 Beggan's Banquet, 218 Abbott, East Lansing

M3G CP/M SIG (MC2)

Meets: Last Thursday, 7:30 PM
 Foster Community Center, 200 N. Foster, Lansing
 Contact: Greg Martin 484-5850

M3G Heath/Zenith SIG (MC2)

Meets: All Saints Episcopal Church
 800 Abbott, East Lansing
 Contact: Bill Goodwin 349-9657

M3G Osborne SIG (MC2)

Meets: 2nd Wednesday, 7:30 pm
 East Lansing Public Library, 950 Abbott, E.L.
 Contact: Jim Pease 332-8746

TI Users Group (MC2)

Meets: 2nd Tuesday
 Naval-Marine Corps Reserve Center
 1620 E. Saginaw, Lansing
 Contact: Steve Bennett, 377-1676 (days), 394-1439 (eves)

U.P.C.O. (Unknown Personal Computer Organization--IBM PC group)

Meets: 4th Tuesday, 7:30 PM
 Natural Resources Bldg., MSU
 Contact: Dick Janson 323-7000 X 224 (days), 675-7453

NOTE: Clubs which are members of the Michigan Computer Consortium are designated by (MC2) following their names.

ABOUT ENERGY

ENERGY is published monthly by the Michigan Computer Consortium (MC²), P.O. Box 1302, East Lansing, Michigan 48823. **ENERGY** is distributed to members of the computer clubs affiliated with MC², and is sold at finer local retailers.

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ABOUT THE MICHIGAN COMPUTER CONSORTIUM

The Michigan Computer Consortium (MC²) was formed in 1983 to sponsor joint activities involving computer clubs affiliated with MC². Current members of MC² are:

CHAOS (Capitol Hill Atari Owners' Society)
CMTUG (Central Michigan TRS-80 Users' Group)
M3G (Mid-Michigan Microcomputer Group).

Information about each of these clubs is published elsewhere in **ENERGY**.

EDITORIAL BOARD

Dennis Cullinan (CMTUG) 351-2175 Editor

Ike Hudson (CHAOS) 351-3092
Rob Peck (CHAOS) 887-0327
Joe Werner (M3G) 337-7415

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Advertising in **ENERGY** is an economical way to promote your products or services to a key audience involved in personal computing. Three sizes of ads are available: business card, half-page, and full-page. Advertising space is limited and controlled, so that ads will never get "lost". Camera-ready copy is needed by the 15th of the month preceeding publication. For more information, contact the Editor.

ARTICLE SUBMISSIONS

Persons wishing to submit articles are encouraged to do so! Articles may be submitted electronically via CompuNet, or in camera-ready form (3.5 inch columns, 16 characters per inch), or in other forms. Contact any member of the Editorial Board. The deadline for all articles is the 15th of the month preceeding publication.



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ABOUT M3G

Mid-Michigan Microcomputer Group (M3G) is a non-profit organization of computer hobbyists, enthusiasts, and users in the Lansing and Mid-Michigan area. Formed in 1975, M3G is the oldest personal computer organization in the area. Membership in the club is open to anyone with an interest in personal computing.

MEETINGS

General membership meetings are held each month, generally on the third Thursday of each month (barring scheduling problems), at the East Lansing Public Library, at 7:30 pm. Visitors are welcome at any meeting.

DUES

Annual dues for M3G are \$12.00, for 12 consecutive months. Family memberships (two or more people at the same address, receiving only one copy of the Newsletter) are available. The first member pays full dues; additional members each pay \$1.00 per year.

To join M3G, come to any meeting, or send one year's dues with your name and address to: M3G, c/o P.O. Box 1302, East Lansing, MI 48823.

AFFILIATIONS

M3G is a member of the Midwest Affiliation of Computer Clubs (MACC), and of the Michigan Computer Consortium (MCC).

NEWSLETTER

M3G members receive ENERGY, published by the Michigan Computer Consortium, as a benefit of membership.

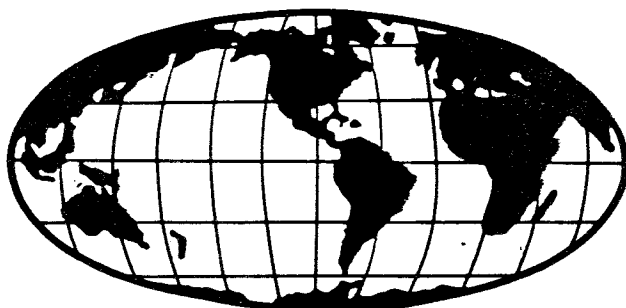
SPECIAL INTEREST GROUPS (SIGs)

M3G currently has three active Special Interest Groups: the Osborne SIG, the Heath/Zenith SIG, and the CP/M SIG. These SIGs hold additional meetings as their members wish, and may charge SIG dues in addition to M3G dues if the SIG so decides. SIG meetings are announced in the Meeting Calendar in ENERGY. Additional SIGs may be formed on any computer-related topic which M3G members may want.

OFFICERS

President.....	Dave Chun.....	394-6318
Vice President.....	Lee Hodges.....	669-3258
Secretary.....	Cheryl Tirone.....	484-3921
Treasurer.....	Lynn Wardwell.....	645-2214

MACC Trustee.....	Frank Dolinar.....	351-1899
CP/M SIG Chair.....	Greg Martin.....	484-5850
Heath/Zenith SIG.....	Bill Goodwin.....	349-9657
Osborne SIG Chair.....	Jim Pease.....	332-8746



The Zenith Z-100 PC
Beyond IBM compatibility.
by Steve Mann

During the first few weeks of February, I began hearing rumours that Zenith Data Systems (perhaps better known as Heath) was about to announce an IBM PC compatible microcomputer. Having been an IBM PC user for the last 2 years, and having been the proud owner of a Zenith Z-100 for the last year, I was naturally curious as to what Zenith was up to. On February 22nd, Zenith finally let the cat out of the bag and announced the Z-100 PC's.

The Z-100 PC is not just another IBM clone. Zenith has given a lot of thought to its design and has come up with a functionally equivalent and much improved alternative to the IBM PC. The new machines are based on a motherboard design similar to that used in S100 based machines. The 8 slot card cage has the same electrical structure as the expansion bus on the IBM PC and is capable of using virtually all IBM compatible add-on boards. The standard configuration includes: an 8088 based CPU card with 32K of ROM, a video display card containing outputs for both RGB and composite monitors, a memory card with 128K of random access memory (expandable to 320K on the same card) which also includes a parallel printer port, and a floppy disk controller card containing 2 serial ports. The remaining 4 slots are available for further expansion. The machines are available in both desktop and portable versions, single and dual floppy disk drive versions, a combination floppy/hard disk drive version, and include MS-DOS 1.25 and MS-DOS 2.0.

The Z-100 PC uses a detached keyboard that is electrically identical to, and interchangeable

with the IBM PC's keyboard. However, Zenith has repositioned some of the keys to make it more closely resemble the layout of a standard typewriter keyboard, and has included LED indicator lights on the CAPS LOCK and NUM LOCK keys. The keyboard itself is the highest quality keyboard that I have seen on an IBM clone and has a light crisp feel to it that should make it very popular. The keyboard will also be sold separately as a replacement option to current IBM PC owners.

The Z-100 PC's will run virtually all IBM PC compatible software without modification. At the demonstration that I attended Zenith had Microsoft's Flight Simulator running on a Z-100 PC and I personally ran PC-DOS 1.0, PC-DOS 1.1, PC-DOS 2.0, PC-TALK III, LOTUS 123, MultiPlan, EasyWriter, Crosstalk XVI, SmartCom II, THE NORTON UTILITIES, and several other programs without any change or trouble. Of all the IBM compatibles that I have looked at (Columbia, COMPAQ, Hyperion, Corona, and Ottrona Attache) the Z-100 PC's are clearly the most compatible.

Some of the other improvements that the Z-100 PC's offer over the IBM PC are: a larger power supply that is switchable between 120 VAC - 60 Hz and 230 VAC - 50 Hz, a quieter fan, up to five times faster video display with a smooth scrolling option and no screen flicker, two jumper selectable character fonts in ROM, a Microsoft DEBUG compatible debugger in ROM, extensive diagnostic aids (LED indicator lights on boards and diagnostic routines in ROM), a CONFIGUR utility for use when installing peripherals, the ability to boot the system off of any drive, a smaller footprint, and increased expansion capability.

The Z-100 PC's are missing the high resolution video of the Z-100 dual processor computers. However, a Zenith representative let slip that a high resolution video board is in the works and will allow the Z-100 PC's to be compatible with both the IBM PC and Z-100 dual processor machines. The Z-100 dual processor machines will continue to be supported by Zenith as evidenced by the recent announcement of the 8087 add-on board, a Local Area Network option, and of Microsoft's Windows for the Z-100.

Model configuration, pricing, and availability of the Z-100 PC is as follows:

ZF-151-21 \$2699

Desktop system, 8088, one 5 1/4" half-high diskette drive, 128K RAM, 2 serial ports, 1 parallel port, color capability with RGB and composite outputs, socket for 8087 co-processor, keyboard, MS-DOS included.

ZF-151-22 \$3099

Desktop system, 8088, two 5 1/4" half-high diskette drives, 128K RAM, 2 serial ports, 1 parallel port, color capability with RGB and composite outputs, socket for 8087 co-processor, keyboard, MS-DOS included.

ZW-151-22 \$4799

Desktop system, 8088, one 5 1/4" half-high diskette drive, 10 meg full-height hard disk, 128K RAM, 2 serial ports, 1 parallel port, color capability with RGB and composite outputs, socket for 8087 co-processor, keyboard, MS-DOS included.

ZFA-161-21 \$2899

Portable system, 8088, one 5 1/4" half-high diskette drives,

128K RAM, 2 serial ports, 1 parallel port, color capability with RGB and composite outputs, 9" Amber display, socket for 8087 co-processor, keyboard, MS-DOS included. (early May availability)

ZFA-161-22 \$3299

Portable system, 8088, two 5 1/4" half-high diskette drives, 128K RAM, 2 serial ports, 1 parallel port, color capability with RGB and composite outputs, 9" Amber display, socket for 8087 co-processor, keyboard, MS-DOS included. (early May availability)

If you compare the suggested retail price of the ZF-151-21 to the suggested retail price of a similarly configured IBM PC (using only IBM expansion options), the Z-150 is about \$200 dollars less than the IBM (\$2699 vs. \$2907) and the Z-150 has 4 open expansion slots compared to no open slots on the IBM. Although the availability of third party expansion options and discounted pricing makes such a price comparison somewhat misleading, the Z-100 PC's seem to be competitively priced. Zenith also offers 90 day on-site warranty service.

HeathKit will be offering the Z-100 PC's in kit form by the end of the year.

Any questions and/or comments can be left to me on CompuNet #1 or Babblenet. I will be glad to try and answer any and all questions concerning the Zenith Z-100's or Z-100 PC's.

Also, anyone interested is invited to attend the Heath/Zenith SIG meetings which are held the second Sunday of the month at 1:00 PM in the State Library on Michigan Ave.

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AROUND THE INDUSTRY

by

Joe Werner

It seems to be getting tougher to find new and exciting things to write about these days. Instead of writing about the latest gee-whiz system, I may soon be reduced to writing speculation about what company will introduce the next IBM-compatible system.

One of the latest to join the IBM-PC compatible fray is Tandy Corporation. The new Tandy TRS-80 Model 2000 is an 80186-based micro running MSDOS. Although not fully IBM PC compatible, it does look like and run like the IBM PC. The computer should be able to run programs written for generic MSDOS, as well as some PC programs which do not have hardware dependencies.

This is the latest step in a transformation of Tandy's computer products. Tandy appears to be moving from inexpensive (read cheap) to quality, and from independence to compatibility.

Remember when the TRS-80 Model II came out? A big, beautiful, business-oriented 8 inch disk system -- without CP/M, but rather with a unique TRSDOS. It wasn't too long before someone else (Pickles and Trout, among others) came out with a version of CP/M. Tandy, of course, denounced the idea and fought compatibility whenever they could.

The first sign that Tandy was changing came when they gave up trying to write their own operating system for the M68000-based Model 16, and released Microsoft's XENIX version of UNIX (tm).

A little later came the announcement of the Model 4, which surprised a lot of people: Tandy announced that the Model 4 would not only be compatible (more or less) with the Model 3, but would also support CP/M! Tandy has in fact recently released CP/M Plus for the Model 4, and it looks like a nice package.

The release of a system aimed at the IBM PC would seem to confirm this strategy. MSDOS compatibility is viewed by many today as essential for the bigger business-oriented systems. Time will tell if Tandy's strategy pays off.

At the same time, Tandy has come a long way from the days of the Model 1 (affectionately known as the Trash-80), with its keyboard prone to keybounce, and its tin edge connectors which always needed to be cleaned. Reports are that the Model 4 and 4P use gold-plated connectors, and that the 4P

is built more ruggedly than most portables on the market today. (One example -- the handle on the 4P is fastened to the computer frame, instead of the case as it is on the Osborne 1.)

Tandy is apparently trying to outgrow its "Radio Shack equals cheap electronics" image, growing into a serious computer manufacturer. They have already made it into Datamation Magazine's list of the top 100 companies in the computer industry (measured in sales dollars for computer-related goods and services) -- a feat which many would not have expected a few years ago. But today's market is more competitive, with the big player (IBM) trying to grab all the marbles, and other good manufacturers (like Tandy and Apple) competing for what's left. I think Tandy has embarked on a good strategy. I only hope it's not too late.

Speaking of IBM (and who isn't, these days), the February 1984 Datamation reports: "By 1988, IBM's annual revenues will hit \$88 billion, or 1.8% of the GNP [Gross National Product]. Net profits will exceed \$25,000 per minute." (Marc G. Schulman, author.)

Quote without comment, from an article by Curt Monash, in the same issue of Datamation: "...[M]any people remain puzzled by the fact that IBM, with all its resources, doesn't offer better software. For example, there are several thousand programmers at Santa Theresa working on database management systems (DBMS). But when asked to name two movie stars and a dog, many observers still answer "Rin-Tin-Tin, Benji, and IMS."

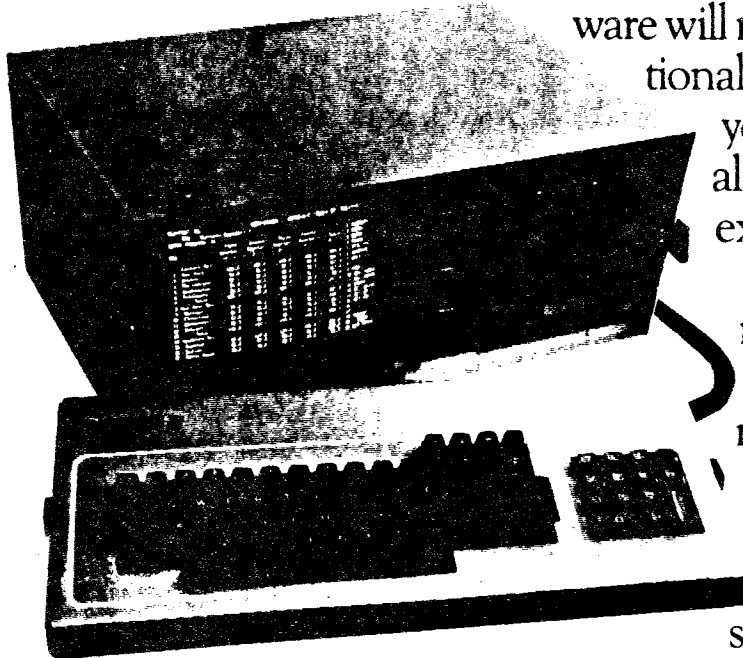
In the March 12, 1984, issue of Computer Retail News, it was reported that despite predictions that the new IBM PCjr would become an overnight success, the Apple IIe has outsold the PCjr to date, and "is expected to outsell the PCjr by a ratio of 2-to-1 this year, according to industry analysts contacted by CRN." CRN also reports January/February unit sales of 100,000 for the Apple IIe versus 40,000 for the PCjr.

So much for this month. Maybe next month, I'll be able to cover some of the rest of the industry.

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H/Z SIG NEWS

by Bill Goodwin

VIEW FROM THE TOP

by David T.W. Chun
President, M³G

If you missed Terry Jensen's visit to our group at the March meeting you missed our best meeting so far. He talked about many things of interest to Heath/Zenith users. Zdos 2.0 should be here by June. Concurrent CP/M-86 will be here soon. This is part of the Air Force/Navy contract and may arrive before Zdos 2.0. I hope it is ver. 3.1. That is the version with windows and the ability to run PC-dos programs. I assume that it will have the same 8-bit capability as CP/M-86. I am also assuming that CP/M-86's problems with CP/M-80 programs will be corrected. Terry also left a few gifts here. Four names were drawn from among those attending the meeting. Three of these were for any software product sold by HUG. The big prize was for any software package sold by Heath. That includes the \$600+ Condor data base package. Unfortunately, he didn't give any specific information on HDOS 3.0. It wouldn't surprise me if it was made available at the HUG conference in July.

Our April meeting will be held at All Saints Episcopal Church in E. Lansing on April 18, at 7:30 PM. The church is near the E. Lansing library at 800 Abbott Rd. We will be meeting in the Canterbury room. This room is on the parking lot level in the north-west corner of the building and has it's own entrance from the outside. There will be a large meeting of the congregation that evening and we have been asked to use the outside entrance rather than entering through the building. The program for that meeting will be provided by Bob Griewski of Friendliware, a local supplier of Heath/Zenith software. He will be demonstrating some of the programs that he has available.

I now have Turbo-Pascal. So far it lives up to all the rave reviews that I have seen. The only problem I have found so far is the editor. There is nothing wrong with the editor, if you like Wordstar. I don't. The install program provides a means of changing the commands of the editor. I have been able to make some changes but not all that I want. The program won't let me use function keys nine or above or any shifted function key. According to messages on the HUG BB (Compuserve) the suppliers of the compiler are working on a patch for this.

Just a reminder to all who haven't joined M3G yet. The Heath/Zenith SIG is a part of M3G and members of the SIG MUST be members of M3G. Joining M3G is very simple. Both the President and Treasurer of M3G are members of the SIG. They will be happy to sign up new members at the next meeting.

Remember, the third annual HUG conference is the last weekend in July, the 27th, 28th, and 29th.

Big doings in the months ahead. Mark your calendar and reserve time for the Second Annual Lansing Computer Fair. It will be held Saturday May 12 at the Foster Community Center (200 N. Foster, Lansing). Preliminary information indicates that at least one floor of the Center will be used to house the exhibit. Exhibitors will include representatives from the Apple, Commodore, IBM PC, TI, TRS-80, and Zenith groups. Unfortunately the exhibit is only scheduled from 10 AM to 2 PM--hardly enough time to get from A to Z. More current information can be obtained from Lee Hodges who will act as coordinator. Also, if you have an unusual computer/computer related 'thing' you think people would be interested in, Lee might be able to reserve space for you.

For the truly masochist, the ComputerFest is looming its ugly head. This year it will be more centralized in the Dayton, Ohio area. The ComputerFest will be held June 8, 9, and 10. The scheduled exhibits will only be held Saturday and Sunday. More details are forth coming from our MACC trustee, Frank Dolinar.

Just in case the calendar fails to appear in this issue of ENERGY, the next meeting of M³G will be April 19 on (believe it or not) the third Thursday of the month. By the time you read this, a topic area will have been determined. Any suggestions for future programs are welcome. Don't be shy, if you have something to present to the group, step forward.

Of interest to all. The CPMUG and SIGM library is getting closer to distribution. Greg Martin is looking for input on how to make it available to members of M³G members.

I would like to close with sincere congratulations to a member of our group, Dr. David R. Rovner who is one of this year's winner of the Distinguished Faculty Awards at Michigan State University. David Rovner has been a member of M³G since 1980, before which and since, he has been tearing down and building up his computer system, a true 'hacker' we can all be proud of.

OSIG

A LA MENU

by Bernard Gaffney

Several MENU or MENU-type programs are available in the OSIG library. Foremost among them are WASH, SWEEP, MENU and OSMENU. WASH and SWEEP perform disk directory maintenance. MENU allows you to create your own customized menu choice program under CP/M. OSMENU is similar in function to MENU, but runs under MBASIC.

WASH

Wash performs various functions to a file list presented on the currently selected drive, requiring only that the operator make appropriate selections from the menu. The functions available include Viewing the file on the console, Listing to a printer, outputting to a PUNCH device (rather useless), Copy a file to another drive, Rename a file, Delete a file, Exit to CP/M, and move Forward or Backward in the file list.

Found on disks 13 and 14.

SWEEP

Sweep is similar in nature to Wash, but is much much improved. In addition to the options available under Wash, Sweep allows files to be tagged, retagged, and untagged for mass file transfers. Also, a new disk/user area may be logged onto; files other than the current file may be renamed, and the amount of disk space remaining on a drive can be checked. An option to squeeze or unsqueeze files has apparently not been implemented.

Found on disk 14.

MENU

MENU.ASM is an assembly listing that allows individuals to set up their own customized menu selection program. The listing can be modified under the "N" option of WordStar, then assembled, loaded and run. Renaming MENU.COM to AUTOST.COM allows it to be run automatically any time the system is booted.

Using /com would allow multiple commands to be entered; thus it is possible to execute a program and then return to MENU.

Menu is found on disk 16 and /ASM is found on disk 13.

OSMENU

OSMENU is similar to MENU but executes under MBASIC, providing a choice of BASIC programs to be run.

Found on disk 15.

Library News

Unfortunately, the news did not get out in time for the last newsletter but we have managed to obtain a copy of 1983 Federal and Michigan income tax templates for SuperCalc 2. These are public domain and appear to be pretty good. They were written by an accountant in Detroit. If you haven't done your taxes here is an aid worth a lot.

The amount of software in the library is increasing weekly. Larry and Cheryl Tirone have volunteered to manage the utility section of the library. Because there is so much software available for free we feel it is time to have a copy session. As you can see from the program below the July meeting has been set reserved for a copy session. It would be a good idea to copy the catalog in June so you can have a list of programs to copy the following month. Because there are so many offerings you need a couple of hours to read through the catalog and make selections.

OSIG MEETINGS

HELP We seem to have a real problem getting ENERGY to you before the meetings. For May the meeting has been scheduled for the THIRD Wednesday. What is your opinion about a more radical change for the June meeting? Say the third SUNDAY!! This may mean a change in meeting place also. How does 2:00 PM on June 17th sound? Look in the April ENERGY for details of the June meeting. Keep this handy in case ENERGY doesn't make it in time next month! The June and July meeting dates have not been reserved yet.

**** COMING MEETINGS ****
* 11 April Public Domain Menu Programs *
* Bernard Gaffney *
* Sharp PC-5000 demo *
* 16 May dBase II Applications *
* Jim Pease *
* June Patching WordStar *
* Tom Stilwell-Dave Webb *
* July Copy Session !!! *
* E. Lansing Public Library - 7:30 PM *

OSIG is the Osborne Special Interest Group of M3G. All OSIG meetings are open to the public. You are welcome to bring your computer, also. Public domain software is available for copying at no charge to OSIG members. Contact Jim Pease at 332-8746 for more information.

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389-502NA Travel Pak

389-510NA Sales Reporter

389-528NA Loan Analyzer

389-536NA Portfolio Analysis

389-544NA Estate Planning

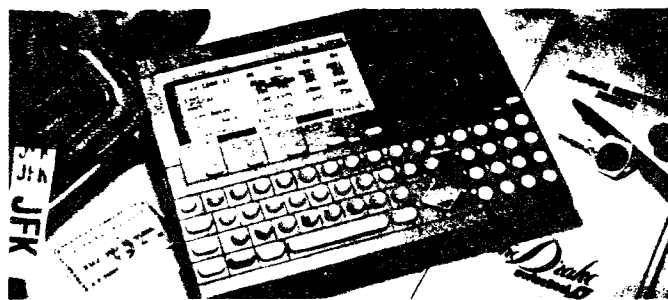
389-551NA Financial Statements

389-569NA Cash Management

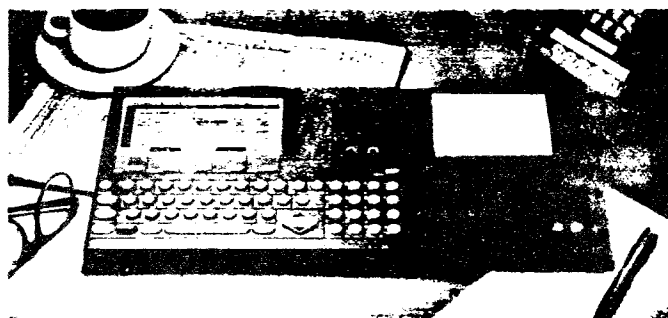
389-577NA Marketing Management

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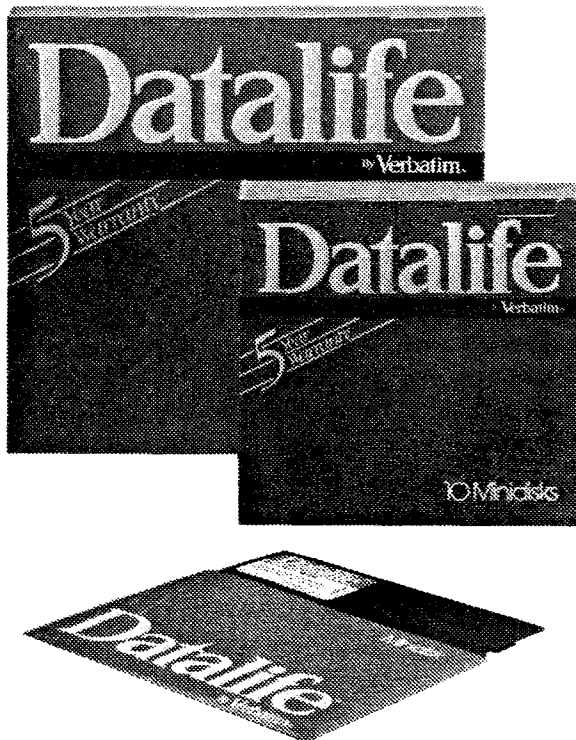
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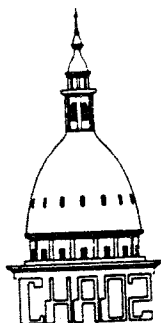
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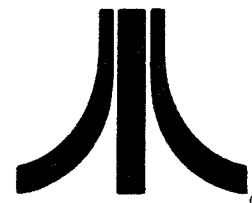
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CAPITOL HILL ATARI OWNERS' SOCIETY



C.H.A.O.S. WELCOMES YOU
TO THE WORLD OF THE

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C.H.A.O.S. MEETINGS

C.H.A.O.S. is the Capitol Hill Atari Owners Society. CHAOS is the largest computer users group in the Lansing area. CHAOS meets every third Saturday in the Foster Community Center (200 N. Foster, behind the Michigan Avenue Dunkin Donuts). The meetings start at 9 AM and end at around Noon. The presentations include new software, new hardware, and news. Business is limited at general meetings to make the meetings more enjoyable.

C.H.A.O.S. PROGRAM LIBRARY

The CHAOS program library contains over 600 public domain programs on disk. A listing is provided to all members when they join CHAOS. If you have not received your copy yet, send a stamped, self addressed envelope to CHAOS, P O Box 16132, Lansing, MI 48901. If you are not a CHAOS member, please add \$.50 to cover printing expenses. Members may order any disk on the list for only \$4.00. Non-members may purchase disks for only \$6.00. The average disk will contain about 10 programs. This is a great buy for only slightly more than the cost of a disk.

You may order disks by calling Guy Hurt (484-7675). Guy will prepare the disk and You may make arrangements to pick it up or you may get it at the next meeting. You may also order by mailing your order and check to CHAOS, P O Box 16132, Lansing, MI 48901. If you want the disks mailed to you, then add \$1.50 for every five disks to cover shipping. The library is a club service run by unpaid volunteer members. Any profits made from the library are used to support the BBS, newsletter and other club services.

C.H.A.O.S. BULLETIN BOARD SYSTEM ONLY A PHONE CALL AWAY

CHAOS, in conjunction with the Library of Michigan, runs a BBS. A BBS is a Bulletin Board System that you can dial into if you own a modem. The telephone number for this BBS is 373-6788. The BBS provides a means of leaving messages to other computer owners and a means of obtaining free software from the CHAOS program library.

C.H.A.O.S. PUBLICATIONS LIBRARY

The CHAOS publications library is a growing collection of books, newsletters, magazines, and tutorial packages. This collection is available for members at no cost. If you would like to check out an item, contact Mike Aldrich (394-2412). This service is especially valuable to the novice. There are special tutorial packages that show how to use many of the powerful features of the Atari. There are also some very advanced Technical User Notes for the advanced user.

C.H.A.O.S. HAS ENERGY

The CHAOS newsletter is ENERGY. CHAOS is one of the founding members of the Michigan Computer Consortium (MC2). As a member of MC2, all CHAOS members receive ENERGY. ENERGY is one of the most professional looking computer club newsletters in the nation. The purpose of ENERGY is to keep the members of MC2 user groups informed of computer events and computer news. Members also have the opportunity to write articles and contribute to making the news.

MC2 (Michigan Computer Consortium)

As a member of CHAOS, you are entitled to an associate membership in any other Michigan Computer Consortium group for only \$2.00. This is especially valuable if you are using CP/M on your Atari or have other computers.

HOW TO JOIN C.H.A.O.S.

If you would like to join CHAOS or renew your membership, then send a check or money order for \$12.00 (payable to CHAOS) and your name, address and phone number to:

```
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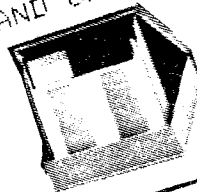
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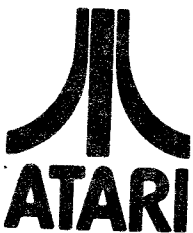


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**MEMBERSHIP RECRUITING DRIVE
FREE DISK FOR EACH NEW MEMBER RECRUITED**

by Ike Hudson

As most of you know, we have enjoyed the status of being the largest computer group in Lansing for the last six months. We are now in danger of losing the number one position to another group. In order to prevent this, we are instituting a new incentive program to encourage our members to encourage their friends to join.

For every new member you bring into CHAOS you will be given a free disk (media and copy fee) out of our very extensive public domain library. There are three ways to make sure you get credit for recruiting someone. The first and best way is to bring a filled in application form and a check for dues to the meeting and give it personally to the Membership Chairperson or the Treasurer, who will then give you a credit voucher.

The second method is to mail (do it yourself to be sure it gets done) a filled in application (with RECRUITED BY yourname written on the front) and a check for dues to the club post office box. The last is to give your friend an application form (with RECRUITED BY yourname written on it) and have them mail it with a check for dues to the club post office box. When the application is mailed, the treasurer will give the disk librarian a credit voucher with your name on it. Give them at least two weeks to communicate and then go to the librarian for the disk you want.

This offer applies only to new memberships that pay the full membership fee. It does not apply to the reduced rate reciprocal memberships with other MC2 clubs! You may receive credit for recruiting a past member, but only if his membership expired on or before 28 Feb 84. If your membership has expired, you may not receive credit for recruiting yourself, because this offer is for CHAOS members only! Renewals do not count as recruiting a new member. There is a list of expired members in this issue, so go get them.

Now is the time to get those friends who need their own copy of energy to join the club. If our membership gets large enough we will begin to receive more freebies from the software and hardware manufacturers. This will benefit everyone, since we give the freebies away to members after the reviewer has finished reviewing it.

We will use the freebies received between now and July 1984 to reward those who recruit the most new members. You must recruit at least three new members to qualify for a prize. First place will receive first choice, second place will receive second choice, etc., from among the freebies the club receives. We will continue to give away freebies until we run out or until we have no one who recruited at least three

new members (whichever comes first). Only one prize per membership. Two family members covered by one membership will only be eligible for one prize.

To insure that there is at least one prize, I am giving one Electronic Arts game to the Treasurer to hold as a prize. Electronic Arts games are all good, so this should stir some interest. This prize will only be awarded to someone recruiting 5 or more members.

Lance Ward, Ike Hudson and Rob Peck are not eligible for prizes because their names are in the flyer that we distribute for CHAOS.

Late breaking news update. We have just received four new pieces of software for review. Three came from SUPERWARE. The titles are XBASIC, SCROLL IT, and EASY. We also received a program called The Programmer's Tool Kit. I hope to have someone review each of these in an upcoming newsletter and make a presentation on them at a meeting. All will be given away as prizes in the recruiting contest.

Assembler SIG
by Wendell Proudfoot

The CHAOS Assembler SIG met on 3/12/84, and enjoyed an interesting presentation by Lance Ward. Lance showed us an 80 column terminal emulation program which he and Claus Bucholz have produced and intend to market as a cartridge. The program greatly enhances the use of the Atari as a terminal with the ATR-8000 running CP/M. We also discussed CP/M and the large library of public domain software available for it (the subject of several M3G articles in ENERGY). We also talked about the EASY Macro libraries (see review this month) and their implementation.

We are still interested in recruiting new participants in this SIG, which seems to be stretching its interests in many different directions. Only one of us is actively writing Assembler code, but we are all interested in discussing hardware and software of all types. It has been suggested that we ought to call ourselves the Beyond BASIC Group. Our next meeting will be at Mike Caterino's house on April 19, 1984, at 7 P.M. Call Mike at 337-0248 or me at 371-3678 for directions.

**THE
COOKIE LADY**



Diana Chattulani
349-4506

Kindercomp is made up of 6 different activities: Draw, Scribble, Names, Sequence, Letters, and Match. It is available in cartridge or disk form for the Atari and the Commodore 64, it is also available on disk for the Apple and IBM Computers.

The following review is based on the cartridge for the Atari.

For the Draw program the upper age limit should be much higher than 8. Not only have my daughters, Monica, age 8, and Melissa, age 4, enjoyed using it but my husband and I have enjoyed fooling around with it also. As the name indicates, this program allows you to use the joystick to make colorful drawing, as you make your drawing, sounds are also heard. You may draw using thin or thick lines. To change the color of the line being drawn just press the fire button. Four different colors are available. To change the background color you press the B key. You can also use the F key to fill the enclosed area with the color you are currently using.

Scribble! is done in Graphics Mode 2 and will fill a line with whatever character has been pressed on the keyboard.

Names is another program that is fun to watch. Melissa likes watching her name in this one. All you need to do is type in a name or a short phrase, there is a limit of 15 characters, press return and watch your name being moved all over the screen. The program ends with your name and a very colorful background.

Sequence is for the older range of ages. Here you see several numbers in order and you must fill in the blank correctly. Each correct answer is greeted with a smile, a wink and a heart is left on the screen. A wrong answer gets a frown and a few tears. As soon as there are 5 hearts on the screen, there is a colorful display of light, sound and an encouraging word, such as; fantastic, great, etc. Occasionally, a starburst will appear with a colorful background instead. The reward is short enough at the end that my kids are encouraged to do it over so that they can see the reward again.

For the Letter program a letter is displayed in upper or lower case and the appropriate key needs to be pressed. The rewards are the same as for the Sequence program.

Last, but not least, is Match which is really good for the younger child. A shape appears in the upper left hand corner of the screen, with the three possible responses below on the right. An adult needs to help on this one. We had our daughter point to the right shape and we would press the appropriate key (1, 2 or 3). The rewards for this program are the same as mentioned above.

In conclusion, I have been very happy that I purchased this particular program, because my kids can have fun playing with this cartridge and never know that it is educational. Learning can definitely be fun.

A lot of memberships expired in the last few months. Some of these people will probably join again if they are reminded that their membership expired. If you would like a fast and easy recruiting credit, then review the list below. If you know one of these people, then call and recruit them back into the club. You may receive a credit for recruiting an expired member only if they expired on or before 28 Feb 84.

Some of these members just expired, and others expired several months ago. I assume most of them just forgot to renew. The list as of this newsletter is as follows:

Houston Ron	344-3604	Christmas Terry	
Caudill Leroy	355-0744	Voorhees Dan	485-4788
Day Terry	663-2012	Braun Michael	371-5709
Allen George	339-8493	Hutchings Donnie	484-3741
Keyes Larry	676-1037	Dewitt Don	787-8936
Stillwell Dan	349-5861	Burk Greg	349-1353
Tripp John	332-0274	Hicks Jeff	587-3091
Perkins Gary	655-1008	Hunter Kam	353-2395
Watts Earl	646-8301	Tibbitts Larry	339-9744
Peterson William	351-3631	Shantz Randy	485-0294
Curtis Scott	349-4784	Delgiorno Tom	332-5068
Bauer Jod	482-3363	Benjamin Chris	651-6942
Kubilis Sandra	351-8618	Wessel Robin	332-3433
		Goluska Brian	332-4415

MORE MEMBERS MEANS MORE BENEFITS TO EVERYONE!!

WANTED: I would like to purchase a good, used Atari 810 Disk Drive. Price negotiable
Call Mike Aldrich (517) 394-2412

FOR SALE: Baja Buggy on disk. Only \$7.00
Call Ike Hudson (517) 351-3092

WANTED -- I need a Mood-Controller for computers. The device must detect the mood of any husband, and if the husband is angry, lonely, or unhappy it will not allow the computer to operate until his wife makes him happy.

WILL PAY ANY PRICE!

(Revised & reprinted from Computerease Utah)

FOR SALE: Flip-N-File 50 only \$17.00
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FOR SALE: Burroughs Keyboard (new) \$25.00/BO
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FOR SALE: Atari 600 with 64K upgrade only \$235
Call Lance Ward (517) 393-1357

QUESTIONS AND ANSWERS

A SERVICE OF CHAOS, FOR CHAOS MEMBERS, BY CHAOS

QUESTION - Why does my Atari 800XL show only 40K when I run the memory test program?

ANSWER - When running the memory test on the XL computers, you should hold down the OPTION KEY while turning on the machine to disable BASIC. When BASIC is not disabled, it takes up 8K of memory that will not get tested. With BASIC disabled, 48K will show up in your memory test.

QUESTION - What modems will run without an interface?

ANSWER - There are three that are currently available. MPP makes a modem with very good software on a cartridge that retails for \$149.00. The software will upload and download object and is included in the price.

- MPC makes a modem that retails for \$149.00 and includes a printer interface that will dump whatever is shown on the screen while you are running. The software is an extra cost option that you will need if you plan to use the modem. The software will do uploads and downloads. You will still need a separate printer interface to do word processing!

- Atari makes the 835 that supposedly retails for \$279.00. It comes with Telelink II. Telelink II does not allow uploads or downloads. I have been told that someone in the club has a version of AMODEM that will run the 835 and do uploads and downloads. Whoever has AMODEM835, PLEASE give a copy to Guy Hurt for the library!

QUESTION - How do I get something from the CHAOS program library?

ANSWER - CALL GUY HURT (517) 484-7675. Also read the article titled LIBRARY NEWS in this issue of ENERGY.

QUESTION - How do I get a book or other club's newsletters from the publications library?

ANSWER - CALL MIKE ALDRICH (517) 394-2412. He will be glad to make arrangements for you to check something out.

QUESTION - What is the best word processor for me to get?

ANSWER - Good question! I wish we knew the answer.

Each word processor has advantages and disadvantages. Get a copy of the December ENERGY for an article on three of the big ones. Also there will be an article in an upcoming issue that will tell about several more. SCRIPTOR, in our library, is a good, inexpensive way to find features you like and dislike about a word processor. Then you can look at the more expensive, more powerful word processors to decide which will fit your needs.

QUESTION - Why aren't there more Special Interest Groups (SIGs)?

ANSWER - Lack of interest?!? So far, no one has tried to organize any SIGs other than BASIC and Assembler/ATR8000. If you want to start one, then bring a sign-up list to the next meeting and get the names and phone numbers of those who are interested. Then all you have to do is schedule a meeting and see how many people are interested enough to show up. If there is enough interest you will have a SIG. GOOD LUCK.

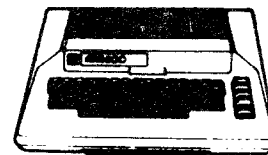
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EASY - a review.
by Wendell Proudfoot

Consider this program listing:

```
02 *= $3000
05 .INCLUDE #D:KERNAL.MAC
10 GR 7
12 SETCOLOR 0,4,4
15 COLOR 1
20 PLOT 5,5
30 DRAWTO 140,55
55 .END
```

Except for lines 2,5, & 55 and the lack of a period after GR, it looks just like BASIC. But it's actually the names of five Macro definitions from the EASY collection by George Schwenk.

The strange looking lines are opcodes used by the MAC/65 Assembler. This will assemble to a object file program which will perform identically as a BASIC program, only you won't need the basic language interpreter!

EASY includes approximately 60 Macro definitions in three library files which assist the novice and experienced programmer to write some very extensive code. Many of the definitions are essentially identical to the similar BASIC commands, and others like the DOI,J,K and LOOP1,J,K commands emulate BASIC commands (FOR-NEXT loops), integer arithmetic is supported and there are TRAP and STOP statements. I/O is easily handled by the OPEN, INPUT, GET, PUT, PRINT, BGET, and BPUT routines.

Most of the Macros are in a file named KERNAL, but there are two others: PMGR and SCROLL. PMGR implements several player/missile graphics definitions. Examples:

PMGR v - establishes P/M graphics at a specified PMBASE and initializes a VBI routine to move the players and missiles.

SHAPE v,adr - tells the player movement routine the address of the first byte of player shape data.

PMOVE v1,v2,v3 - moves the player v1 to position v2,v3 on the screen.

SCROLL examples:

SCRDIM v1,v2,v3,adr4,adr5 - sets up a scrolling playfield in ANTIC mode v1, with horiz. and vert. dimensions of v2 & v3, adr4 is the address of the display list and adr5 is the address of the display data.

SETXY v1,v2 - coarse scrolls to put the top left corner of the screen at the specified x,y coordinates of the display data.

SCROLL is also the address label referenced by the routine to determine the direction to scroll. Values are identical to the STICK directions.

EASY is easy to use (hence its name?), one nice feature allows the machine to recover from errors during execution. The error messages aren't any better than BASIC's but, it's much better than lock-up! The three library files come in two versions of each. One version is

for MAC/65 and the other for AMAC. Apparently the definitions in the two versions are identical with the only exceptions involving the PRINT commands. And if you've read this far, you probably also want to know that EASY is sold by:

SUPERware
2028 Kingshouse Road
Silver Spring, MD 20904
\$39.95

In conclusion, I think this collection would be well worthwhile to any owner of AMAC or MAC/65, especially people like myself who want something more than BASIC but who doesn't quite grasp all the nuances of Assembler.

Basic User Group


By M. Aldrich

NOTICE!!! BASIC USER GROUP MEETINGS ARE NOW THE 1st and 3rd WEDNESDAYS OF EACH MONTH. Now, everyone who couldn't come because of obligations on Thursdays can come!!!

The March 1st BUG meeting was quite interesting for the new disk users in the group. "How information is arranged on a disk" was discussed. How and Where DOS keeps track of files, and how are sectors of a file linked together was explained. What are DOS.SYS, DUP.SYS, and AUTORUN.SYS? How and in what order does the computer use the system programs on disk. A few utilities of the DOS menu were also demonstrated or explained. Other aspects of disk drives were also discussed. More time will be set aside for learning how to use a disk drive at the March 14th meeting.

BUG is starting to grow. Different levels of users are coming in, so you don't have to feel like you are at the bottom, cause you might know more about some things than others. We address all aspects of the computer, BASIC, peripherals, etc..

The Basic User Group will be meeting the 1st and 3rd Wednesdays starting in April. March's meeting of the 14th was special because of the change. Meetings are still held in room 210 of Foster Community Center, 200 N. Foster St. (just around the corner from the Dunkin Donuts on Michigan Ave). Meetings are from 7 PM until about 9 PM.

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If your phone number is not in our membership files, then your name does not appear. We have a lot of members that have not given their phone number. Please let Rob know what your phone number is!

Adams	Denis W	616/781-
Aldrich	Mark	517/393-
Aldrich	Mike	517/394-
Bader	Michael	313/521-
Baird	Chuck	517/669-
Barker	John	517/723-
Barr	Greg	517/337-
Barron	Felix	517/355-
Beha	John	517/655-
Berger	Marge	313/627-
Boland	Scott T	517/784-
Bolthouse	Jim	517/371-
Bowers	Jon	517/339-
Bowers	Vance C	517/371-
Bozarth	Ted	517/332-
Brown	Jonathan	517/394-
Caterino	Mike	517/337-
Champion	Dan	517/482-
Chattulani	Diana	517/349-
Christensen	Robert	517/669-
Clewley	Mike	517/627-
Cook	Joyce M	517/733-
Cooper	Thomas E	517/484-
Denske Jr	Fred	517/394-
Diemer	Gordon	517/627-
Doell	Richard J	517/626-
Edwards	Jon R	517/355-
Fairbanks	Bill	517/569-
Ford	Arlene	517/669-
Forman	Perry	517/482-
Geiger	David E	517/882-
Genshaw	Bill	517/355-
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BEYOND THE RUMORS

by Ike Hudson

As you all know, Convologic announced a new interface that will interface the printer and the modem to the Atari. The retail price was going to be \$139.00. Well, as usual with most announcements that are made before the product is made, the price has now gone up to \$169.00. It should discount to about \$150.00, but that price makes the old Atari 850 look attractive again at a discounted price of about \$175.00. There are rumors that Atari will begin making the 850 again! This coincides with the rumor that the new expansion interface for the XL computers will not be made.

The other day I read an article saying that Atari purchased several ATR8000s from SWP, Inc. These units have been placed in several offices for evaluation. At about the same time, rumors began to indicate that Atari was dropping their CP/M module and the expansion interface.

There is also a rumor that Atari will be announcing a new computer that is Atari and IBM compatible with software and features that are beyond the McIntosh by Apple. The rumored designation for this machine is the Atari 1985. This new machine is supposedly being designed to meet the demands of a new developing market, and taking advantage of those who already own the Atari. This is something they should have thought of with the old 2600.

If Atari does come out with this machine, they can draw from several different markets. They will keep us happy with Atari compatibility, draw in the IBM types and bring in many of those sitting on the fence. The key to this is getting a cooperative agreement with IBM so Atari can produce a machine that is more than just compatible.

I, for one, am ready to buy one. This will also be a machine that is marketed only through computer stores and non-discount marketers. That is because it will appeal to the business market as well as schools and homes. A scaled down version may be available at the local discounters, but the big gun enhancements will be available only in your local computer store.

This will not be available until 1985. It should be announced at either the Winter or Summer 85 CES. If you think about it, you will love it. It should be a real show stopper. The portable full scale version should be announced first. Then will come the scaled down (Atari only) portable for the discounters with upgrade peripherals for the computer stores. The final version will be an office model that emphasizes the IBM portion and the built in hard disk. My source says that Atari will deny all of until all the contracts and design specifications are complete. Most of the VPs don't even know!

Success of this system will depend on the will-

ingness of the computer stores to take Atari back into their inventory. A long-term (no-discount) dealer agreement on the professional units and expansion units should resolve this problem.

You may be wondering where the ATR fits into all this. It is the beginning. It may even turn out that Atari will license with SWP for CP/M and IBM compatibility. At least they can learn from a company that did a good job. If the Atari, ATR CP/M, and CoPower (IBM compatibility) can all be put into one portable box...

LIBRARY NEWS

by Ike Hudson

At the March meeting it was announced that the price of library disks will return to the pre-Christmas levels. The prices for library disks will be as follows:

NEW LIBRARY PRICES

	MEMBER OR CLUB	NON-MEMBER
DISK & COPY FEE	\$4.00	\$6.00
DISK ONLY (USED COPY CREDIT)	\$2.00	\$ N/A
COPY FEE ONLY (USED OWN DISK)	\$2.50	\$4.00

SHIPPING - \$1.50 for every 5 disks

The cost of SCOPY 810 (we pay for a license for this program) will remain at \$8.00. This is an excellent copier program with full documentation. The documentation alone is worth the \$8.00 you will pay for the program. There are a lot of features you can use if you know how!

If you want a disk from the library, call Guy Hurt (484-7675) and order it in advance. He will prepare it at his leisure (normally within a few days) and let you know when it is ready for pickup. All disks must be paid for before they are picked up or mailed. If you want them mailed to you, then send Guy the money for the disks and mailing costs with your order.

Even with the new prices, we maintain one of the lowest priced, largest libraries in the country. It is provided as a service to our members and as a money generator for the club. Our dues are low because the library supports most of our activities. USE YOUR CLUB LIBRARY TO SAVE YOU MONEY.

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KEN'S CP/M KOLUMN

A CP/M Primer ~ Part II

By Ken Hopkins WAP/CP

reprinted from DIME, March 84

Those of you who operate both CP/M and another operating system such as TRSDOS or MEMDOS will soon find the need to transfer a file between one DOS and the other. The following is a procedure that may be used to transfer any ASCII file, including a BASIC program stored in the ASCII mode, back and forth between CP/M and TRSDOS, MEMDOS, etc.

The first step is to pick up the ASCII file in question into your favorite word processor. Lazy Writer, for example, stores text under process in a buffer located at memory location B500H and up. Once your text or ASCII program is resident in your word processor, it will start at memory location B500H. While in your word processor you have the chance to make any desired changes prior to transferring to CP/M.

Now, remove your TRSDOS disk and boot up CP/M. Since CP/M and its associated utilities occupy memory starting at 0100H (and below) there is no conflict with your file STILL RESIDENT at B500H. Call up DDT and use the "D" command to examine memory starting at B500H (or wherever your word processor stores text). By scanning through memory, you will be able to determine the beginning and ending point of your program/text. Next, use DDT's "M" command to move the block of text starting at B500H up to memory location 0100H. Scanning down from 0100H you should find your entire file. You will need to know where the end of the file is in hex pages to know how many pages of text to save later. Now type GO to exit from DDT. If the end of your text was at 0B00h that means you will need to save 8 "pages" of text, etc. Now type SAVE 8 TEST.TXT and you will have your entire file on disk named TEST.TXT. The final step is to examine your file under Wordstar or another editor to clean up any garbage at the very end of the file resulting from the save operation.

This procedure works quickly and simply once you're used to it and may be used as well going in the other direction, CP/M to TRSDOS. □

USE A STANDARD JOYSTICK With Your Model III

By John Smith

[Of John and Carol Smith Fame]

reprinted from DIME, March 84

The idea for this project came from several sources; my 7 year old wanting a joystick for games, looking at the prices of commercial units for the Model III, and finally seeing an ad for a wired in version which could use any of joystick. One Sunday I decided to take a look at the schematic of the Model III keyboard to see what was required to connect a joystick.

To my surprise, I found that the four arrow keys and the space bar all had one common terminal! Knowing that, and the fact that all standard joysticks have five switches, I saw the solution to my problem. Simply wire the joystick in parallel with the five keys used in most games.

There is ample room on the back of the PC board in the CPM to solder the wires, and you can bring the wires out of one of the ventilation slots on the bottom. Once outside the computer case, you can either use a connector which mates with the joystick or just hardwire to it. I used a Commodore joystick, but any unit with switches inside should work as well.

The following is a step by step procedure for the installation and wiring of a joystick, for anyone who wants to know what is ahead before opening the computer case (DANGER!).

A. Remove the Model III cover: Place the computer on it's back and remove the 10 screws from the bottom, noting that there are several sizes and types so you can put them back in the right place. Now turn the unit upright again and remove the one screw on the back. Working from BEHIND the computer lift the cover straight up, while watching through the cover slots to be sure the CRT wires do not hang up. Turn the cover 90 degrees and place it on it's side to the right of the machine. Next remove the screws holding the keyboard in place. Now remove and set aside the keyboard cover plate. Unplug the multi-conductor cable from the keyboard and then the two black ground leads. Now you can lift the keyboard out of the computer.

B. By looking at the front and then the back of the keyboard, note the locations of the arrow keys and space bar. Behind each key will be two solder pads on the board which connect it's switch.

C. Since one lead of each five keys is common, you can use an ohm-meter determine which terminals these are, or do a lot of PC runner tracing.

D. Now you are ready to attach the leads. Connect one lead to the common terminal (anywhere). Next connect one lead to the unique terminals of each arrow key and the space bar. There should be a total of six (6) wires. These wires should be coded so that you can identify them later.

E. Now re-install the keyboard referring to step A. Next route the newly added wires out through a slot in the cabinet bottom.

F. Replace the Model III cover per step A. by reversing the process in step A. Congratulations! The worst is over.

G. All that remains now is to connect the joystick. You can either open up the joystick and do it scientifically, or just try pairs of wires like I did until you get the right function!

H. That's it! You can now score many more points on your favorite game and not wear out those five keys on your keyboard. Happy hunting! □

INSIDE FACTS

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ROGERS ELECTRONICS REPAIR

This month I want to start dealing with a new aspect of telling the 'inside facts'. We have covered a number of hardware-related topics designed to alert you to ways of improving your relationship with your computer. Several of those topics are worth revisiting, for the sake of newcomers to computing, but it's a little soon for that. Rather, let's start looking into the stores in the greater Lansing area that deal in the hardware, software and services for computer users. And, in order that justice be served, we will start with those dealers who advertise in the pages of *Energy* magazine. Of those, three have been with us every month since our inaugural issue in August 1983: Computer Options, n Cybernetic Frontiers, and Rogers Electronics. We'll take 'em alphabetically in the next three issues.

Computer Options is the Radio Shack dealer at 109 Lansing Street in Charlotte. They also handle other products, notably the Sanyo line of microcomputers. There is a lot of information about the company's products and services in their ads for the past several months, but there may be a few things about them you don't know. For instance, one of the partners who own Computer Options is Greg Martin, a longtime member in good standing of both M3G and CMTUG. You'll perhaps remember reading Greg's articles on CP/M in *Energy*. This is no accident, for Greg is the chairman of M3G's CP/M SIG. He has assembled a collection of 240 public domain CP/M disks, which he makes available for copying at a very nominal charge. Both 5" and 8" disks can be accommodated.

Computer Options strikes a balance between Tandy's 'company' stores which offer no discounts, and the mailorder houses which discount very heavily. That is, modest discounts are offered, but they stress after-purchase support and a service/repair facility they are frankly very proud of. Their repairman, Martin Stanish, holds a degree in digital design and seems very capable in technical matters, as well as being most candid in discussing those matters with the customer. The last I heard, Martin was on his way to becoming designated an official repairman for the Sanyo computer, which would open the door to 'legitimate' disk drive enhancements to that machine, for example. This certification will go into effect soon April 18th.

Although the initial trip to Charlotte may seem a bit far, it should be noted that all the partners live in the immediate Lansing area, and they set aside time expressly for a truly rare service: house calls! Nonetheless, in order to encourage customers to drive out to Charlotte to see their wares, and also as a way to gauge their ads' drawing power, Computer Options has been including a coupon in their ads, good for a free 5" diskette. I can vouch for the fact that they do indeed deliver on that offer, even though I did not make a purchase. For those of you who are thinking of trading up for new equipment, they will take used hardware in trade, or they will sell your old stuff on consignment. As a result of this policy, you can find some nice, vintage pieces at bargain prices on their shelves. It's at least worth a phone call to see what they may have on hand.

The partners, Karl Meier, Joel Setzekorn, Dave Wood, and Mike Murphy are all former employees of the Radio Shack Computer Center on S. Cedar in Lansing. Martin Stanish was a technician at a Detroit area Radio Shack Computer Center. Together with Greg Martin, whose background I mentioned above, this is a bunch of guys who are absolute enthusiasts about computing. They love talking about computers, and they know what they're talking about. Why not take that short drive to Charlotte and pay them a visit? And while you're at it, tell them Matt Cantrell sent you.

Matt Cantrell



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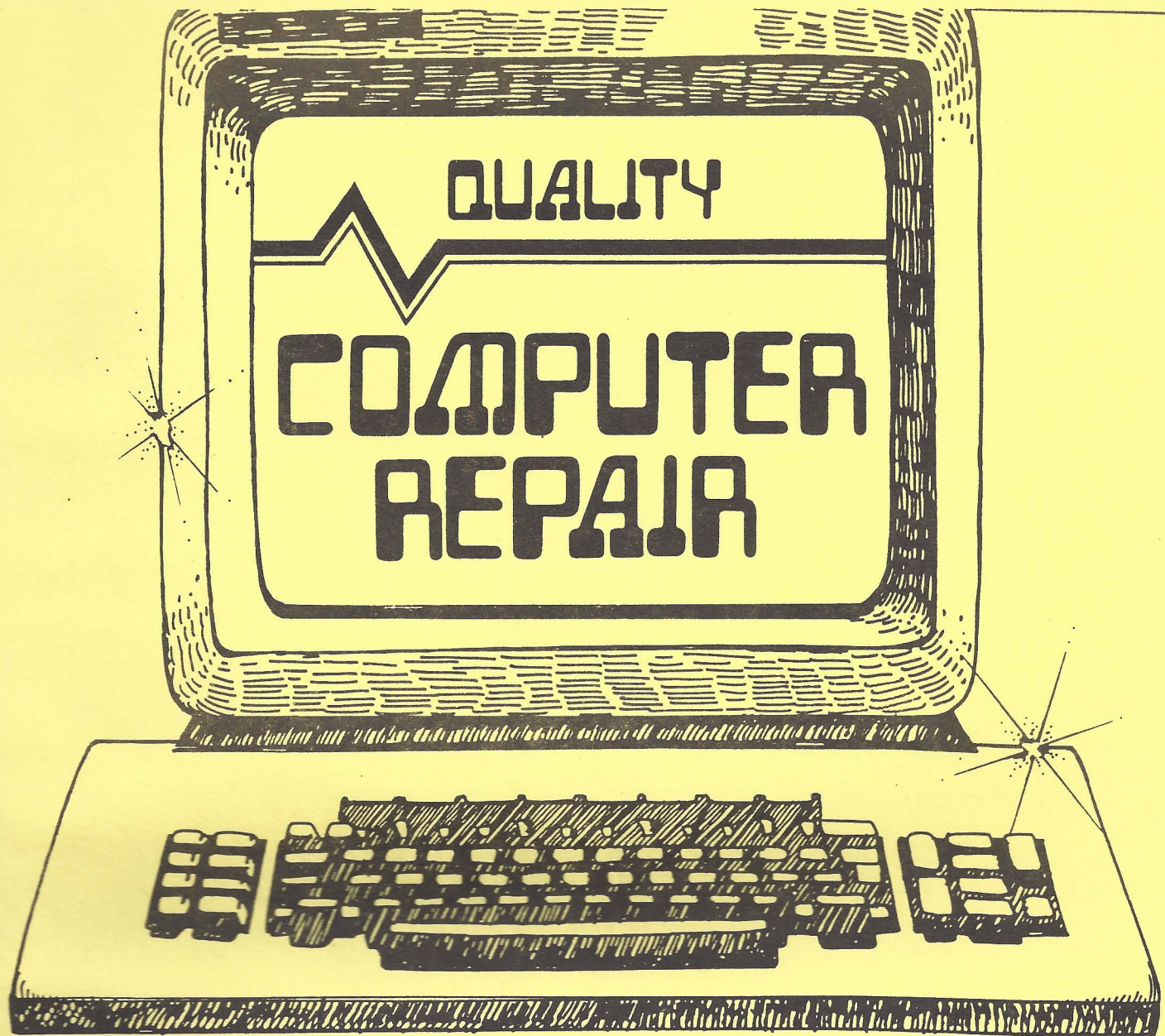
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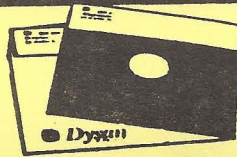
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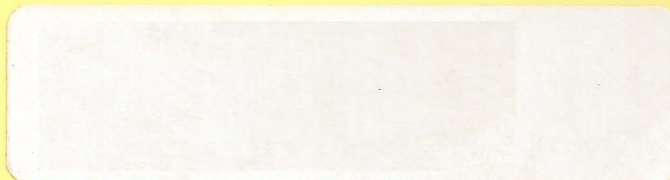


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